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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,902	04/14/2004	David Harold Goode	SVL920010052US2	7589

7590 01/04/2007

IBM Corporation
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EXAMINER	
PATEL, NIKETA I	
ART UNIT	**PAPER NUMBER**
2181	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/824,902	GOODE ET AL.	
	Examiner	Art Unit	
	Niketa I. Patel	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/14/04,8/25/04,3/21/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of bypassing I/O operations must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because figures 4A and 4B fail to clearly show which conditions in step 404 leads to the steps 406 and 422. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the

application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

3. The information disclosure statement filed 08/25/2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. The applicant failed to provide copy of document "EPO 756228."

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

5. The use of the trademark IBM, AIX, S/390, OS/390 and UNIX has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

6. Status of the co-pending application listed on page 1 of the specification under the section "Cross Reference to Related Application" must be updated.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 16 and 31 of U.S. Patent No. 7,113,937 B2 (hereinafter "*Patent'937*".) Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed and anticipated by above recited claims of *Patent'937*. *Patent'937* is a narrower implementation of the instant invention since the claims 1, 16 and 31 recite limitation of a computer operating system having an application programming interface and a shell interface and use of the application programming interface and the shell interface.

9. **Referring to claim 1**, claim 1 of *Patent'937* discloses a computer-implemented method for bypassing I/O operations included in said computer, said computer having a computer program application that includes ordered computer code, said ordered computer code including I/O access commands, said computer being optimized for support of queued said I/O access commands, the method comprising: using asynchronous direct said I/O access commands in said application ordered computer code; locating said asynchronous direct I/O access commands that are included in said application ordered computer code; and bypassing said support of queued I/O access commands of said computer by executing said asynchronous direct I/O access commands.

10. **Referring to claim 2**, claim 1 of *Patent'937* discloses further comprising: including an operating system in said computer; and bypassing said support of queued I/O access commands

of said computer when porting said application from said computer operating system to a different operating system.

11. **Referring to claim 3**, claim 16 of *Patent '937* discloses a computer system for bypassing I/O operations included in said computer system, said computer system having a computer program application that includes ordered computer code, said ordered computer code including I/O access commands, said computer being optimized for support of queued said I/O access commands, comprising: said computer system that is designed to optimize queued said I/O access commands; asynchronous direct said I/O access commands that are used in said application ordered computer code; said asynchronous direct I/O access commands that are included in said application ordered computer code; and said support of queued I/O access commands of said computer that is bypassed by executing said asynchronous direct I/O access commands.

12. **Referring to claim 4**, claim 16 of *Patent '937* discloses further comprising: an operating system in said computer system; and said support of queued I/O access commands of said computer that is bypassed when porting said application from said computer operating system from a different operating system.

13. **Referring to claim 5**, claim 31 of *Patent '937* discloses an article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by said computer for bypassing I/O operations included in said computer, said computer having a computer program application that includes ordered computer code, said ordered computer code including I/O access commands, said computer being optimized for support of queued said I/O access commands, wherein: computer-readable program code designs

said computer to optimize queued said I/O access commands; computer-readable program code uses asynchronous direct said I/O access commands in said application ordered computer code; computer-readable program code locates said asynchronous direct I/O access commands that are included in said application ordered computer code; and computer-readable program code bypasses said support of queued I/O access commands of said computer by executing said asynchronous direct I/O access commands.

14. **Referring to claim 6**, claim 31 of *Patent '937* discloses wherein: computer-readable program code includes an operating system in said computer; and computer-readable program code bypasses said support of queued I/O access commands of said computer. When porting said application from said computer operating system from a different operating system.

Claim Rejections - 35 USC § 112

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 recites the limitation "said asynchronous direct I/O access commands" in line 11. There is insufficient antecedent basis for this limitation in the claim.

b. Claim 3 recites the limitation "said asynchronous direct I/O access commands" in line 9. There is insufficient antecedent basis for this limitation in the claim.

c. Claim 5 recites the limitation "said asynchronous direct I/O access commands" in line 11. There is insufficient antecedent basis for this limitation in the claim.

d. Dependent claims 2, 4, 6 inherit the same deficiency sue to the dependency on claims 1, 3 and 5, respectively.

e. Applicant overuses the terminology "**said**" throughout the claim language. For example: claim 1, line 6 recites, "asynchronous direct **said** I/O access commands"; claim 3, line 5 recites, "optimize queued **said** I/O access commands". Furthermore, the applicant needs to maintain consistence use of "queued I/O access commands" and "asynchronous direct I/O access commands".

f. The example of claim 1 and claim 3 given above are representative of applicant's excessive use of the terminology "**said**" but is not exhaustive and the applicant is required to review the entire set of claims to clarify any ambiguous use of term "**said**".

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

18. Claims 1, 3, 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Bronson et al. U.S. Patent Number: 6,065,088 (hereinafter "*Bronson*".)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

19. **Referring to claim 1**, *Bronson* a computer-implemented method for bypassing I/O operations included in said computer [see column 1, lines 5-10 and column 8, lines 8-19 – strictly ordering commands relative to MMIO accesses while simultaneously allowing INR and IRR commands (i.e. asynchronous commands) to bypass the enqueued MMIO accesses], said computer having a computer program application that includes ordered computer code, said ordered computer code including I/O access commands, said computer being optimized for support of queued said I/O access commands [see column 8, lines 15-19 – this capability eliminates the risk of deadlock associated ordering INR and IRR commands relative to MMIO accesses; MMIO accesses are the queued I/O access commands shown in figure 3, elements 141, 146], the method comprising: using asynchronous direct said I/O access commands in said application ordered computer code [see column 8, lines 20-22 – queues 136, 134 and figure 3]; locating said asynchronous direct I/O access commands that are included in said application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue – which indicates that these commands were located before being sent to

output queue]; and bypassing said support of queued I/O access commands of said computer by executing said asynchronous direct I/O access commands [see column 8, lines 42-54 – INR and IRR commands (i.e. asynchronous commands – since, the INR and IRR are interrupt commands they are not time-dependent, they can be asserted any time, therefor they are type of asynchronous commands) effectively pass MMIO accesses.]

20. **Referring to claim 3**, A computer system for bypassing I/O operations included in said computer system [see column 1, lines 5-10 and column 8, lines 8-19 – strictly ordering commands relative to MMIO accesses while simultaneously allowing INR and IRR commands (i.e. asynchronous commands) to bypass the enqueued MMIO accesses], said computer system having a computer program application that includes ordered computer code, said ordered computer code including I/O access commands, said computer being optimized for support of queued said I/O access commands [see column 8, lines 15-19 – this capability eliminates the risk of deadlock associated ordering INR and IRR commands relative to MMIO accesses; MMIO accesses are the queued I/O access commands shown in figure 3, elements 141, 146], comprising: said computer system that is designed to optimize queued said I/O access commands [see column 8, lines 20-22 – queues 136, 134 and figure 3]; asynchronous direct said I/O access commands that are used in said application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue]; said asynchronous direct I/O access commands that are included in said application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue]; and said support of queued I/O access commands of said computer that is bypassed by executing said asynchronous direct I/O access commands [see column 8, lines 42-54 – INR and IRR commands

(i.e. asynchronous commands – since, the INR and IRR are interrupt commands they are not time-dependent, they can be asserted any time, therefor they are type of asynchronous commands) effectively pass MMIO accesses.]

21. **Referring to claim 5**, An article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by said computer for bypassing I/O operations included in said computer [see column 1, lines 5-10 and column 8, lines 8-19 – strictly ordering commands relative to MMIO accesses while simultaneously allowing INR and IRR commands (i.e. asynchronous commands) to bypass the enqueued MMIO accesses], said computer having a computer program application that includes ordered computer code, said ordered computer code including I/O access commands, said computer being optimized for support of queued said I/O access commands [see column 8, lines 15-19 – this capability eliminates the risk of deadlock associated ordering INR and IRR commands relative to MMIO accesses; MMIO accesses are the queued I/O access commands shown in figure 3, elements 141, 146], wherein: computer-readable program code designs said computer to optimize queued said I/O access commands [see column 8, lines 20-22 – queues 136, 134 and figure 3]; computer-readable program code uses asynchronous direct said I/O access commands in said application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue]; computer-readable program code locates said asynchronous direct I/O access commands that are included in said application ordered computer code [see column 8, lines 22-30, the INR and IRR commands are sent to high priority output queue – which indicates that these commands were located before being sent to output queue]; and computer-readable program code bypasses said support of queued I/O access commands of

said computer by executing said asynchronous direct I/O access commands [see column 8, lines 42-54 – INR and IRR commands (i.e. asynchronous commands – since, the INR and IRR are interrupt commands they are not time-dependent, they can be asserted any time, therefor they are type of asynchronous commands) effectively pass MMIO accesses.]

Conclusion

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Manning U.S. Patent Number: 6,366,992 B2 has been made record of to further show the state of the art as it pertains to allowing commands to bypass a command pipeline in order to meet the latency criteria associated with the command.

Marcotte U.S. Patent Number: 6,292,856 B1 has been made record of to further show the state of the art as it pertains to application influence of I/O service order post I/O request.

Carpenter U.S. Patent Number:6,199,068 B1 has been made record of to further show the state of the art as it pertains to mapping interface for a distributed server to translate between dissimilar file formats.

Creta et al. U.S. Patent Number: 6,801,976 B2 has been made record of to further show the state of the art as it pertains to outbound ordering queue read bypass buffer to receive read transactions pushed form the outbound ordering queue to permit posted writes and read/write completion to progress through the outbound ordering queue.

Dyer U.S. Patent Number: 6,629,220 B1 has been made record of to further show the state of the art as it pertains to dynamic arbitration between a first queue and a second queue based on a high priority transaction type.

Klein U.S. Patent Number: 6,304,923 B1 has been made record of to further show the state of the art as it pertains to prioritizing data transfer request by comparing a latency identifier value received from an I/O device with a predetermined rage of values.

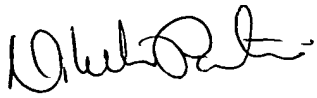
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Niketa I. Patel whose telephone number is (571) 272 4156. The examiner can normally be reached on M-F 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz Fleming can be reached on (571) 272 4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner:



Niketa Patel
12/22/2006